G.A.Bullet-in

Official Publication of the Government Arsenal, Department of National Defense

April 2011 Issue JCM Vol. 1 No. 1

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GA Modernization... An Accurate Shot to the Future

EDITORIAL

REVOLUTIONIZING THE ARSENAL

The Government Arsenal (GA) which has been manufacturing ammunition for the AFP for over 35 years now, must undergo the needed transformation in order to fully sustain the mandate for its existence as called for in the Administrative Code of 1987.

In 2001, it has taken an initial step to venture into weapons manufacture, with the joint research and development project for the production of 9mm machine pistol or the Special Assault Weapon (SAW9) which has completed ten (10) units by 2008 that already passed engineering and field tests.

Much as the Arsenal wanted to grow and diversify, it is constrained by the yearly appropriations it receives from the national budget. With the assumption to duty of the incumbent Director, GA just last April 2010, much has already taken off, in close collaboration with the AFP and full support from the SND.

In less than a year during his incumbency, several major projects have taken shape which are truly responsive to the needs of the AFP like the procurement of additional production equipment to increase the capacity in the manufacture of 5.56mm ammunition; refurbishing of unserviceable M16 rifles in the AFP inventory and eventual upgrade into M4; manufacture of training and blank ammunition using recycled cases of Caliber .45, 5.56mm and 7.62mm; and adoption of the laser marking technology to improve traceability of ammunition, among others.

Further, there still exists the potential to enter into Joint Venture projects with foreign investors in the defense industry, which would open opportunities for high-investment projects without cash outlay from the Philippine government.

Indeed, the bright prospects for enhancing the manufacturing capability and capacity of the Arsenal are at hand. It would just require sustainability and support from the higher authorities, to the benefit of our soldiers in the field. *(TLV)*

Director's Corner

With my over a year of assignment in GA, I am very grateful for the warm reception accorded to me by the Arsenal populace as their new Director. If I may say, I was able to blend quite easily into their stream, as we speak with one mind when it comes to the product they are manufacturing.

My early months in this bureau opened my eyes to the realization of its vast potential for growth considering the technically-capable human resource and competent managers, as well as the facilities and land resource not fully optimized. There lies the challenge – to fill in the gap where it is very much wanting through some collaborative efforts and resourcefulness.

In the coming years, the Arsenal commits to increase its small arms ammunition production. Higher volume would apparently bring down the cost of manufacturing.

Fortunate in these times that the Secretary of National Defense is very supportive of the capacity and capability upgrade and modernization thrusts of the GA, and there is influx of proposals coming in from various defense manufacturers here and abroad.

With the recent visit of two (2) proponents, we will be looking into the conversion of the Propellant Plant for the manufacture of ball powder, and the production of M-4 Assault Rifles, these at no cost to the government, while at the same time, providing employment opportunities in the locality.

There is so much bright future for the GA, to be able to fully support the defense materials requirement of the AFP, and extend such supply to the PNP and other law enforcement agencies , not only in terms of small arms ammunition but higher caliber ammo and weapons as well.

I believe in the initiatives, bright ideas and technical know-how of the people in the Arsenal, and most importantly, I believe in the quality of the products they produce as they are at par with international standards.

Mabuhay ang ating Arsenal!

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GA MODERNIZATION. . .
NOW GAINING HEADWAY

The incessant quest to modernize or at least upgrade the Government Arsenal (GA) manufacturing capability and capacity is primarily premised on the fact that its equipment are now very old and labor intensive with decreased production efficiency. As part of the war reparation goods from the Japanese Government after World War II, these are first generation hand-me-down and out-moded machineries with low rated capacity capable of producing only about 58% of the total small arms ammunition (SAA) requirement of the AFP. With book value depreciated to almost zero, this set of equipment has been continuously operating and producing the much needed SAA for the AFP for over 40 years now.

While the fortuitous passage into law on February 23, 1995 of RA 7898, otherwise known as the Armed Forces of the Philippines Modernization Act has no doubt brought hopes to the advocates of the GA Modernization and certainly to the rest of the GA workforce, most especially because Section 12 of said law explicitly mandates the modernization of the Government Arsenal, it is very unfortunate that after more than a decade since its enactment into law, no fund was released to implement the supposed GA modernization, causing the ray of hope in the hearts of the dedicated GA workers to faint. Sadly, most of the pioneers in GA have already retired and will no longer witness any realization of their dreams for a modern Arsenal.

Those who were left behind and the new generation of workers can only rest their hopes in prayer, hoping that in God's chosen time, the most awaited GA modernization would take off. That long wait finally found light in the year 2010, as we had a good tandem of a Secretary of National Defense and a GA Director, who are both truly supportive of GA's modernization thrust and who both wanted it to really happen soon. MGen Jonathan C Martir AFP (Ret) who assumed office as Director, GA in April 2010, knows the needs of our soldiers in the field and knows better how to appreciate the quality of SAA the GA manufactures, he, being a well-trained and be-medaled Marine sharp-shooter. On the other hand, the Honorable Voltaire T Gazmin, Secretary of National Defense, during his visit to the agency in October 2010, unhesitatingly gave the GA fund support in the amount of PhP306M for the acquisition of selected equipment which would initially increase the production capacity of the agency from the present 58% to at least 70% supportability to AFP''s total SAA requirement. The equipment acquisition process thru the DND BAC is now in full swing.

The SND also granted the GA's request for additional PhP17M to augment the previously approved PhP75M for the acquisition of a Mutli-station Bullet Assembly machine for the in-country production of 5.56mm M855 or SS-109 ammunition to support the requirement of the AFP's Squad Automatic Weapon, otherwise known as Minimi and the K3 Rifle. Another fund support, i.e. PhP35M, goes to the Laser Marking and Packaging machine. Once acquired, this would address the problem on the traceability of GA-manufactured ammunition upon issuance by the AFP in various units. This would place the Philippine Arsenal as second ammunition manufacturer world-wide to use said laser technology. Equally important is SND's approval for the release of PhP7.2M for the restoration of power supply and other GA facilities that were damaged by typhoon Basyang last year, and for the preparation of a master development plan for the entire GA's defense industrial estate covering a total land area of 370 hectares.

The incumbent Director, knowing exactly what the AFP needs and what the GA is capable of doing, has other projects in the making which are duly supported and approved by the SND:

Refurbishing and eventual upgrade into M4 of over 8,000 unserviceable M16 rifles in the AFP inventory – This will be undertaken by the GA in possible collaboration with a foreign partner, who is financially and technically capable to undertake the project, which will include in-country manufacture of firearms parts to eventually bring the idle rifles back into serviceable conditions. This project which could save millions of government funds is aimed to enhance the agency's technical capability in the repair of firearms, which would eventually evolve into in-country manufacture of small arms weapons.

Manufacture of training ammunition for the AFP using recycled cases of Caliber .45, 5.56mm and 7.62mm, to include blank ammunition – Considering the high cost of copper in the world market which directly affects the cost of brass raw material for ammunition components, recycling of fired or spent cases in the manufacture of training ammunition would significantly reduce production cost, while at the same time, making use of what used to be left as waste or discarded items. It is assured, however, that the functionality of every round will be of the

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PROJECTS ON THE GO

ENHANCED VERSION OF 7.62MM M80A BULLET

The Government Arsenal (GA) has come up with an improved version of its cartridge 7.62mm M80A projectile by adapting the design of the standard 7.62mm M80 boat-tailed bullet.

The Cartridge 7.62mm a.k.a. GANATO is being manufactured at GA way back in 1978 through in-house development, where the bullet configuration originated from the classic Cartridge Cal .30M2 150 gr. flat-based bullet chambered for US M1 Garand Rifle, Browning Automatic Rifle and BMG. The velocity is limited only to 810 mps which is lower compared to the standard M80 bullet with velocity of 838 mps. The reason for this is that, the ballistics specifications for M80 is not attainable due to higher chamber pressure and port pressure as per US military standard when using 150 grains bullet against the 147 grains for the M80, The only advantage of the 150-grain bullet is that, it is easier to manufacture than the boat-tail bullet.

The boat-tail bullet, though, has less drag to retain its energy at long range and has improved stability against crosswinds, thus, increased distance and accuracy. The propellant charge weight is also reduced because the required velocity is easier to attain at lower chamber pressure, hence, lesser propellant powder requirement for each cartridge.

Because of this improvement, GA's Cartridge 7.62mm M80 is now at par with the US MIL or NATO standards.

THE NEW 210 GRAINS CTG CAL .45 M1911

Incumbent GA Director Jonathan Martir, a weapons expert and well-experienced retired General of the Marines, conceptualized the idea of developing the 210 grains bullet for Cartridge Cal .45 M1911.

Experiment was conducted by reducing the weight of the standard 230 grains bullet for Cal .45 M1911 military grade ammo manufactured by GA to 210 grains. This was done by adjusting the jacket and slug length in Trimming operation. The main objective is to lessen and/or reduce the muzzle recoil of the Cal .45 Pistol, thus controlling the muzzle climb during firing, without sacrificing the accuracy and terminal effects of the Cal .45.

There is likewise a corresponding increase in velocity from the standard 260 mps to 277 mps. This is to compensate or retain its power factor or muzzle energy without sacrificing the knockdown power of military grade Cal .45 cartridge.

After a series of trials and tests conducted by expert shooters, including the Director himself, improved performance was observed in terms of controllability, accuracy and penetration.

With this innovation, use of the GA Cal .45 ammo is now limitless, as it can be used for combat, as well as for practical shooting.

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New Coding System for GA Ammunition

The GA's original system of product coding was derived from the product codes of foreign manufacturers using a combination of English (products preceded by Cal e.g. Cal .45 which means 0.45 of an inch) and Metric System or Système International (SI) units (products with "mm" as a unit of dimension e.g. 5.56 mm).

A new GA Standard Coding System was formulated and duly approved last October 14, 2010 for purposes of originality and identification of GA's ammunition products and its components. The new system will be adopted starting CY 2011 production in all the markings on packaging materials like carton boxes and plastic crates.

The revised coding system makes use of letter and number combinations that would still give a hint on the caliber / type of the product, not only for easier identification but at the same time avoid the use of a mix-up of English and SI Systems.

Seen on the following tables are the revised coding system for GA's existing products as well as those that are ongoing and for future development. The standardization will not only be limited to the ammunition products, but will be extended to the technical drawings of packaging materials, tools, dies and machineries.

DESCRIPTION	EXISTING CODE	REVISED GA CODE
1.) 5.56MM (CAL .223)		
M193 5.56MM, BALL*	5.56MM M193 BALL	GA 556100
M855 / SS109 5.56MM*	5.56MM M855	GA 556110
5.56MM, ARMOUR PIERCING AMMUNITION	-	GA 556200
5.56MM, ARMOUR PIERCING INCENDIARY	-	GA 556300
5.56MM, BLANK *	5.56MM BLANK, GA 45	GA 556400
5.56MM, MATCH	-	GA 556500
5.56MM, TRACER	-	GA 556600
2.) 7.62MM (CAL .30)		
M80 CARTRIDGE, 7.62MM, BALL, BOAT TAIL*	7.62MM M80 BALL	GA 762100
M80A CARTRIDGE, 7.62MM, BALL, SQUARE BASE*	7.62MM M80A BALL	GA 762105
7.62MM, ARMOUR PIERCING INCENDIARY	-	GA 762300
7.62MM, BLANK	-	GA 762400
M852 CARTRIDGE, 7.62MM, MATCH	-	GA 762500
7.62MM, TRACER	7.62MM, M62 (GM) TRACER	GA 762600
3.) CAL.45		
CAL .45, M1911, BALL*	CAL.45 M1911 BALL	GA 45100
4.) 9MM (CAL .354)		
9MM PARABELLUM, BALL*	9MM PARABELLUM BALL	GA 9100
5.) CAL.30		
CAL .30 M1*	CAL .30 M1 BALL	GA 30100
CAL .30 M2*	CAL .30 M2 BALL	GA 30105
6.) CAL .50		
CAL .50 M33*	CAL .50 M33 BALL	GA 50100
7.) CAL.38		
CAL .38 SPL 158 LRN *	CAL.38 SPL 158 LRN	GA 38700

CALIBER	CALIBER
5.56MM	*7.62MM*
100 M193, 5.56MM, BALL	100 M80 CARTRIDGE, 7.62MM, BALL, BOAT TAIL
110 M855 / SS109, 5.56MM	105 M80A CARTRIDGE, 7.62MM, BALL, SQUARE BASED
200 5.56MM, ARMOUR PIERCING	300 ARMOUR PIERCING INCENDIARY
300 ARMOUR PIERCING INCENDIARY	400 7.62MM, BLANK
400 5.56MM, BLANK	500 7.62MM, MATCH
500 5.56MM, MATCH	600 7.62MM, TRACER
600 5.56MM, TRACER	*CAL.30*
	100 CAL.30 M1
CAL.45	105 CAL.30 M2
100 CAL.45,M1911,BALL	*CAL.50*
	100 CAL.50 M33
9MM	*CAL.38*
100 9MM PARABELLUM, BALL	700 SPL 158 LRN

Legend: * - existing GA ammunition products

(Engr. Kath Reotutar)

PROJECTS ON THE GO *(Continued from page 3)*

LASER MARKING TECHNOLOGY TO IMPROVE TRACEABILITY OF AMMUNITION

The project aims to have a system for efficient and effective ammunition traceability to properly identify the GA ammunition as to origin type and transfers using the laser marking technology and packaging machine. This tracing process provides not only basic security norm of handling ammunition but it also helps to counter any attempts of misappropriations. Once acquired, the GA will be the first to use such technology among local ammunition manufacturers.

The existing method is marking at the base of the cartridge case head the stamp RPA and the last two digits of the year of manufacture, basically to identify that the ammunition is produced by the Republic of the Philippines Arsenal. This process of marking is done during heading operation.

WHISPER AMMO

Whisper ammo is very suitable for production at GA, as said wild cat cartridge matches with our existing manufacturing line for 5.56mm case and Cal .30M2 flat-base bullet, the main components in the manufacture of 300-223 Whisper Ammunition.

With use of the existing 5.56mm case, no altering or replacement of the bolt face (M16 Rifle) is necessary if the cartridge is used in firearms with this type of chambering. Further, the 5.56mm case allows the long Cal .30M2 flat base bullet, 7.62mm boat tail bucket or the popular Sierra Match King bullet to be seated for the same cartridge over-all length as for the 5.56mm x 45mm M16 Rifle series, only, the upper receiver assembly requires replacement with the one chambered to Whisper. The unaltered magazine allows the new cartridge to function in a correctly barreled upper receiver.

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PACKAGING INNOVATION FOR BETTER AMMUNITION STORAGE

The type of packaging is vital in securing and preserving the quality of ammunition while being stored and awaiting its distribution or utilization. The most suitable packaging material should be able to withstand extreme conditions such as erratic change in temperature and can protect the ammunition from unwanted agents that may cause its fast deterioration. Hence, the attributes of the material must be an important consideration in ammunition packaging and not only the economic aspect which sometimes dictates the choice for the said application.

The Government Arsenal (GA) had been using conventional wooden crates for ammo packaging since the start of its operations in 1974. This type of packaging proved to be effective and economical in nearly three decades of usage. However, a new concept of ammo packaging for 5.56 mm ammo was conceived in 2006 and initially implemented in 2008 with the emergence of the problem on recurring termite infestation and consequent staining/corrosion of finished cartridges in the recent years. Addressing the problem was also an opportunity to give GA's ammo packaging a new look that fits the criteria for military application.

The original packaging system consists of ammo carton boxes placed in ammo tin cans with can opener which are further placed in a wooden box with carton fillers and finally secured with a nylon strap. The new packaging for 5.56 mm has the same capacity of one thousand four hundred and forty (1,440) cartridges placed in forty-eight (48) carton boxes. The carton boxes are now equally packed in eight (8) vacuum-sealed transparent nylon-laminated polyethylene plastic bags with 5-gram silica gel bags. These are all arranged into two (2) layers inside an olive drab-colored high density polyethylene (HDPE) plastic crate. The plastic crate with dimension specifications of $354^{+2/-0}$ mm x $362^{\pm 0.2}$ mm x $133^{+2/-0}$ mm has an approximate gross weight of twenty (20) kgs when loaded with 5.56 mm ammo.

The objective of the project was to replace the wooden crate with high density polyethylene (HDPE) plastic crate and to forgo the use of ammo tin can by replacing it with vacuum-sealed nylon polyethylene (PE) plastic bag. Plastic material is the best option to replace the existing ammo packaging due to its favorable physical properties. The plastic crate can survive any type of weather condition for longer periods and resistant to attack of termites and other biological pests. Unlike the wooden crate, it can repel moisture which is an unwanted agent in packaging. Moreover, plastic crate can be considered lightweight as compared to a heavy and bulky wooden crate. Aside from corrosion resistance, the use of vacuum-sealed plastic bag with silica gel instead of ammo tin can also makes the packed ammunition virtually air-free and securely sealed for protection against moisture and deterioration.

Primary tests for the plastic crate material during its developmental stage required mechanical properties such as 24 MPa (min) mean tensile strength, 300% (min) mean elongation and 50 SD (min) mean hardness. Moreover, testing also included drop/impact, mean breaking load in compression and mean flexural strength analysis. These stringent tests were conducted to ensure that the plastic crate will indeed serve its purpose of providing better storage protection.

The initial 22% increase in packaging cost during the early stages of implementation is now significantly reduced to 3% increase based on the latest 2010 procurement of packaging materials. Therefore, the increase in packaging cost is very minimal compared to the losses that may result from using less superior type of packaging, especially during long storage.

For continuous improvement of 5.56 mm packaging, inclusion of a rubber gasket to further guarantee protection against moisture and water is being undertaken. This packaging innovation is not only a step forward to a longer storage life for 5.56 mm ammo but also for other calibers in the near future. *(Engr. Czarina Daclan)*

GA ACQUIRES NEW PRODUCTION EQUIPMENT

The Secretary of National Defense, Voltaire T. Gazmin, approved the budget allocation of P306M from the AFP Modernization Act Thrust Fund (AFPMATF) in the Department memorandum Directive No. 1 dated July 26, 2010 for the partial acquisition of 5.56mm Case manufacture and Cartridge Assembly equipment. These numbers of equipment are needed to increase the capability of GA in producing 5.56mm caliber to fully sustain the ammunition requirements of the AFP, PNP and other government law enforcement agencies.

As stated in the project's Circular of Requirements, the equipment for procurement are the Draw Press Machine and the Case Forming for Case Manufacture along with the Cartridge Priming and Weighing and Gaging Machine for Cartridge Assembly. In comparison to GA's existing equipment which are tedious to operate and with low rate of production, these modern machines are capable of doing multi-operations with a capacity of 125 parts per minute (ppm) for the Weighing and Gaging Machine and 250 ppm for the rest. This would mean lesser numbers of operators and greater output for the 5.56mm manufacturing line. Once acquired, these equipment are expected to increase GA's production capacity from 15M to 20M rounds small arms ammunition annually or from 58% to 69% supportability of the Armed Forces of the Philippines (AFP) requirement thus, increasing the level of the country's self-reliance in ammunition requirement. Successful implementation of this project will eventually lead to the acquisition of a new dedicated line for 5.56mm; a great step towards GA's modernization goal. *(Ms. Cheyene Sanico)*

ANODIZING (ANODIC COATING) AND HARD CHROME PLATING

Part of the Government Arsenal's thrust insofar as modernization and realization of its mandate are concerned is the upgrading and rehabilitation of the small arms used by the Armed Forces of the Philippines. Virtual to this is the fabrication of worn out parts and employment of appropriate protective coatings to lengthen their useful life.

A means of providing resistance to corrosion of small arms' parts made of aluminum and its alloys is the use of anodic coating or anodizing. This is the electrolytic treatment of aluminum, magnesium and their alloys and other similar metals the result of which is the formation of heavy and stable film of oxides on their surfaces. A thin oxide film will

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Evening Talk Show LIBERTAS interviews Director Martir

Mr. Bayani Lagac and Rep. Mitos Magsaysay of Zambales, hosts of evening tlak show Libertas on channel 21 interviewed Director Jonathan C Martir live in their show for one solid hour on March 3, 2011, which was aired from 8:00 p.m. to 9:00 p.m. same day.

The interview centered on the queries by the hosts on what the Government Arsenal (GA) is all about, its yearly budget, the types of ammunition that the GA produces, capability to supply the requirements of the AFP, hauling of finished ammunition by the AFP from GA, thrusts pertaining to modernization and self-reliance, conformance of GA products to international standards, etc.

It was quite amazing for the hosts to learn from the good Director that the machines are still running in good condition to produce quality ammunition despite their being in operation for 35 years already, which the Director credited to the engineers and technicians maintaining these machines.

Director Martir likewise clarified that GA issues the ammunition only to the Armed Forces and that, it has no capability of bringing the ammunition to Mindanao. It is only the General Headquarters of the Armed Forces which hauls the ammunition from GA. However, the GA is taking the initiative to find a solution to the problem of ammunition going into the wrong hands through the adoption of laser etching technology into the cartridge. Realizing the importance of such, the acquisition of the needed equipment is fully supported by the SND in terms of funds.

The interview was also an opportunity for the Director to discuss the various modernization projects of GA in tune with the Self-Reliance Defense Posture (SRDP) program of the government, to be able to meet fully the demands of the AFP for ammunition and consequently bring down the cost of ammunition, while also expanding its capability beyond ammunition manufacture.

In parting, the hosts had these to say -

Rep Magsaysay: "… it's nice to hear naman na di naman lahat ng bagay na kailangan natin eh, we have to procure pa from abroad. At least, it's nice to know na that even here in the Philippines, meron tayong Philippine Arsenal na puwede pala nating asahan…"

Ka Yani: "Hindi po lahat eh puro mali na lang. Meron pong isang tao ngayon… General Martir, na doing his best even on the very low resources on his responsibilities… and to that…I salute you, Sir!" *(Ms. Hiyas Karunungan)*

GA ASSESSORS ATTEND IDAP TRAINING WORKSHOP

The designated assessors of GA as per D.O. No. 78 for the Institutionalization of the Integrity Development Action Program (IDAP) of the DND, attended the four-day Training Workshop at Subic Holiday Villas, Subic, Zambales on 29 March to 1 April 2011.

The aim of the Training Workshop is to prime the assessors in the assessment process and instruments, and application of the tools and methodology. ASEC Lamberto Sillona of ASPER delivered the opening remarks in behalf of the DND IDAP Project Sponsor, USEC Honorio S Azcueta. This was attended by the DND Project Team; Assessors from the AFP units, Civilian Bureaus and DND Offices; DND Researchers and support staff for a total of 50 attendees.

The Training Workshop was facilitated by the Development Academy of the Philippines (DAP) through the DND Project Management Team headed by Director Ana Marie P Sta Ana of OASPER.

Among the salient topics discussed and became subject of workshops were: Overview of Corruption and Measures of Control, Stages of Integrity Development Review (IDR) Tools and Methodology such as the Corruption Resistance Review and Corruption Vulnerability Assessment, and Report Preparation and Planning for the IDR. It was emphasized here that as assessors, our objective is to enhance systems integrity in the workplace that will prevent vulnerability to corruption in all stages of the process. *(TLV)*

GA PURSUES QMS-ISO PROJECT

A DND-sponsored General Employee Orientation regarding Quality Management System (QMS) ISO Project was conducted at GA on March 10, 2011 at the Arsenal Kawilihan from 8:30 – 11:30 a.m.

The Orientation aims to introduce the concepts, importance, benefits and requirements of ISO. It aims to effect improvement in public sector performance and more consistent, efficient and citizen-driven quality service. It was facilitated by resource persons from the Development Academy of the Philippines (DAP) who were joined by some members of the DND Project Management Team.

The initial Gap Assessment for the GA QMS which aims to establish a baseline from which to build and develop an ISO 9001 compliant QMS, followed on March 17, 2011 which was attended by designated representatives from the different divisions and offices. After said Gap Assessment, the two-day Foundation Course on the Development of a QMS Certifiable to ISO 9001:2008 was held on April 7-8, 2011 for the GA executives and division representatives.

The QMS ISO is one of the projects under the Philippine Defense Transformation (PDT) of the DND in partnership with the DAP which will provide technical assistance for the project. The project is geared towards institutionalizing Quality Management System for all DND agencies certifiable to ISO 9001:2008 as mandated by Administrative Order 161 and Executive Order 605. *(Ms. Lorie Gamiao)*

FEATURED PERSONNEL

CARMELITA MENDOZA

2010 Dangal ng Bayan Awardee

Ms Carmelita Mendoza or Thalits as she is fondly called by her peers is a BSBA Accounting graduate called to serve in the Arsenal on 7 May 1975 as Accounting clerk and Production Cost Analyst. She was assigned as Chief, Finance Section of Administrative Division in April 1991, a position of trust which she holds for over 35 years now.

Married to her career, Thalits also find time or rather devotes her time outside office in the activities of the Couples for Christ, particularly in the Handmaids of the Lord where she is a very supportive member.

A low profile person, but also a fun and loving friend and co-worker, Thalits proved her worth as a public servant when she unhesitatingly returned P750,000.00 worth of cash to the Land Bank of the Philippines after she discovered that the money she withdrew from the bank for payment of employees' salaries exceeded the actual amount she withdrew.

The GA gave due recognition to her good deeds by bestowing upon her the Administrative Division Model Employee Award for CY 2008, and she was consequently recommended as GA Exemplary Supervisor for CY 2008.

With that gesture of honesty and professionalism, she received recognition as Outstanding Public Official and Employee or Dangal ng Bayan Awardee during the Regional Finalists Recognition Rites of the Civil Service Commission Honor Awards Program on September 10, 2010 at the King's Royal Hotel and Leisure Park, Pampanga, and finally conferred the national Dangal ng Bayan Award during the Awards Rites on October 15, 2010 by His Excellency President Benigno S Aquino III at the Malacañang Palace. As awardee, she likewise received a trophy designed by the National Artist for Sculpture Napoleon V. Abueva and a cash prize of P100,000.00.

The award also entitled Ms Mendoza an automatic promotion or an increase in salary equivalent to the next higher position, i.e. from SG-18 to SG-19 pursuant to Section 6, Paragraph 3 of Republic Act No. 6713 dated February 20, 1989, effective upon her conferment by the President.

Additional package of benefits include the following:

- An executive check-up at the Philippine Heart Center (PHC), with a validity of one year to commence on November 15, 2010, the date the CSC letter was received by the PHC.

- A scholarship grant in baccalaureate, masteral or doctorate degree in any of the following state universities, valid within five (5) years from the time of the receipt of the award: University of the Philippines, Philippine Normal University, and Technological University of the Philippines.

- A scholarship grant in the following private institutions valid for a period of five years from the time of the receipt of the award: Ateneo de Manila University thru the Ateneo Graduate School (a degree in Masters of Business Administration or Masters in Entrepreneurship), De La Salle University Inc. (one course or degree either a baccalaureate course, masteral degree or doctorate program) or Far Eastern University (a masteral or doctorate degree at its Manila Campus).

Indeed, it pays to be honest, and the act of honesty exemplified by Ms Mendoza is one glaring realization that there is dignity and honor in being a public servant. *(TLV)*

GA MODERNIZATION... NOW GAINING HEADWAY ***(Continued from page 3)***

same standard as that of the regular ball ammunition.

Revival of the GA Modernization through Joint Venture undertaking with financially and technically capable local and foreign entities, either on per project scheme or via total development of the entire GA industrial estate. Along this line, several proponents have already signified their interests to participate and invest in the GA modernization project.

Just recently, through the initiative of the incumbent Director, the GA became the recipient of six (6) M4 Rifles from Sabre Defense Industries of the United States of America. The Rifles were tested on January 14, 2011 and found to be compatible with GA-manufactured 5.56mm M855 (SS-109) ammunition and are now issued for use by the Arsenal security forces.

All of these projects, with the recent ones mostly conceptualized in 2010, are part and parcel of the overall GA modernization strategy, which are now gaining headway with the dynamic spirit of the incumbent Director and able support of the SND. *(Mr. Roger Gamban)*

ANNODIZING AND HARD CHROME PLATING ***Continued from page 5)***

form on an aluminum surface without special treatment on exposure of the metal to air.

For other parts made of iron and steel, the idea would be the application of hard chrome plating, although the application is not limited to weapon parts but also on the rehabilitation of worn out tools, punches and dies to extend their usage life.

While both anodizing and hard chrome plating involve electrochemical processes to produce much thicker and more effective protective coatings, the former adopts cold process, hence, requires the use of a chiller. On the contrary, the latter employs hot process and so, an immersion heater is usually installed as the heating medium.

Some plants had already been visited by members of the Technical Working Committee and discussed with the prospective proponents, submission of their Total Project Cost Proposals inclusive of the cost of equipment, furnishing materials and labor in regard to installation and test run. Additional requirements would be the provision of Technical Data Package and after sales service.

The Committee requested the proponents to process samples as one of the bases in the evaluation of the effectiveness of their respective processes. *(Engr. Ann Buenaflor)*

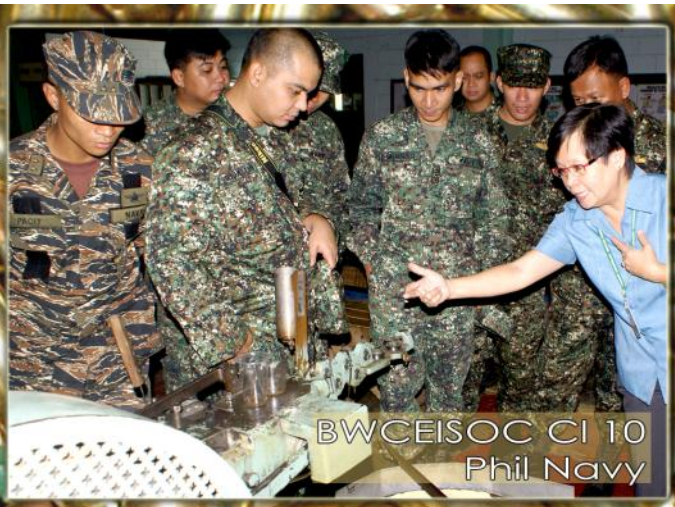
PROJECTS ON THE GO ***(Continued from page 4)***

The long projectile occupies additional case capacity, which means that the reduced propellant charges needed to attain subsonic velocities could be loaded without additional fillers. Further, the small propellant powder charge results in minimal recoil, especially in gas-operated self-loading rifles, and the suppressors used to quiet the cartridge could also be proportionately made smaller.

The cartridge case can be produced using the existing case manufacturing line, with modification particularly the final forming operation in the Tapering and Necking machine through revision in the die profile, then cut to length in the Head & Mouth Chamfering machine. Fired cases can also be used by undergoing a series of processes such as cleaning, cutting, re-forming (at Tapering & Necking operation), primer crimping removal, and polishing to recover the surface luster. Since the 5.56mm cases produced at GA conform to military standards, they are stronger and last longer than any commercial .223 Rem cases.

This design of the .300 Whisper can be attributed to J.D. Jones, an ex-IHMSA Match Director and the owner of SSK Industries. *(Engr. Dennis Chua)*


S&T DAEWOO Corp.
South Korea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